



# Bureau of Waste Management



- ◆ Introduction
- ◆ Background of Site
- ◆ Contaminants at Site
- ◆ 1,4 Dioxane
- ◆ Bureau of Air & Radiation Involvement
- ◆ Current Status of Site



# Introduction



- ◆ Hazardous Waste Permits/Geology Unit
- ◆ Curtis Building, 3rd Floor
- ◆ Section Chief: Mostafa Kamal (785) 296-1609
- ◆ Unit Chief: Brad Roberts (785) 296-5639

# Background of Site

- ◆ Site is an old chemical dump at a university in Kansas (waste was dumped in open, un-lined trenches)
- ◆ Review of site history revealed radioactive material in dumped waste (from the 60's to 80's)
- ◆ Groundwater sampling was not providing information identifying the nature or concentration of the radiological contamination

# 1987 AERIAL



Photo Courtesy of Allied Environmental  
Consultants

# 1987 AERIAL

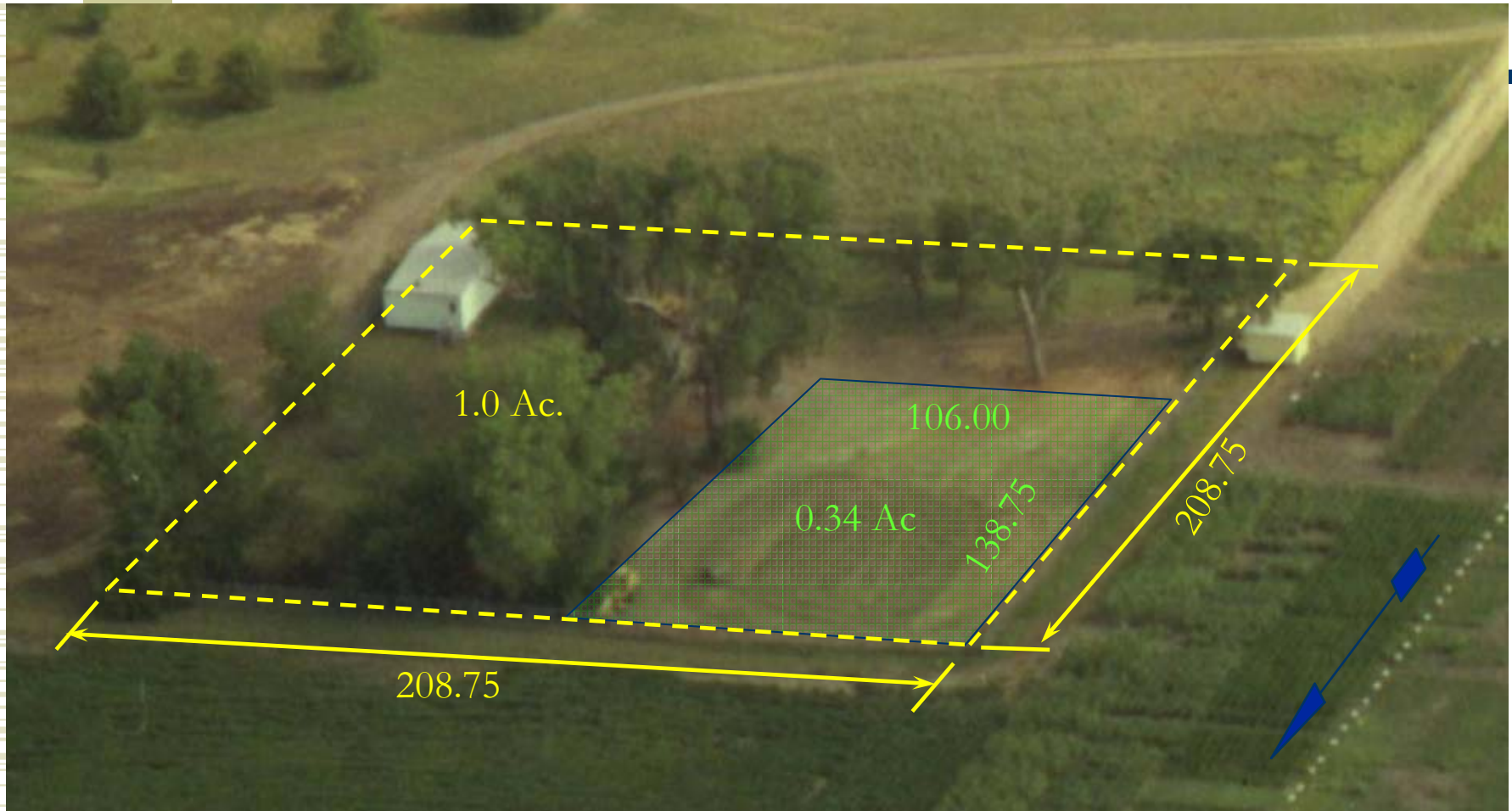


Photo Courtesy of Allied Environmental  
Consultants

# Contaminants at Site

- ◆ Benzene (446 ppb in 2005)
- ◆ TPH Gasoline Range (1,570 ppb in 2005)
- ◆ TPH Diesel Range (12,200 ppb in 2005)
- ◆ 1,4 Dioxane (14,000 ppb in 2005)
- ◆ Trichloroethene (TCE) (8.2 ppb off-site in '05)
- ◆ Cis-1,2 Dichlororethene (184 ppb in 2005)

# 1,4 Dioxane

- ◆ 1,4 Dioxane was added to the Sampling and Analysis Plan in June, 2001
- ◆ Samples are analyzed via SW 846-8015
- ◆ Chemical Abstract Service (CAS) number is: 123-91-1
- ◆ Kansas Residential Groundwater Risk value is: 80 parts per billion (ppb)





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PROJECT: 05055:0544  
SCALE: 1:100  
DATE: 5-27-05

1,4 - DIOXANE (ug/L)  
MARCH 2004

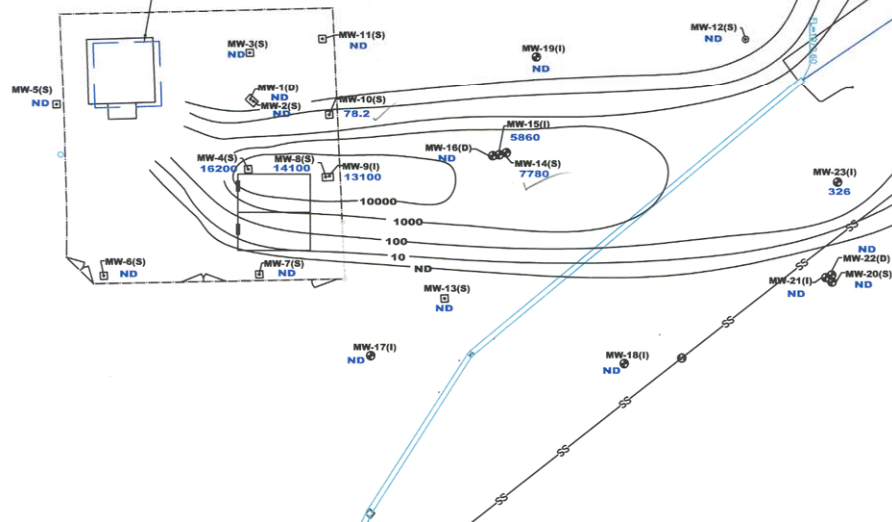
FIGURE  
14

DWN BY: JJS

CHKD BY: WAV

SHT: 14.OF.17

OCWLF BENEATH  
HAZARDOUS WASTE MANAGEMENT  
BUILDING







NOTE:  
ND = <50 ug/L; LAB  
"J" FLAGGED VALUES  
BETWEEN 50 & 250  
(THE REPORTING LIMIT)



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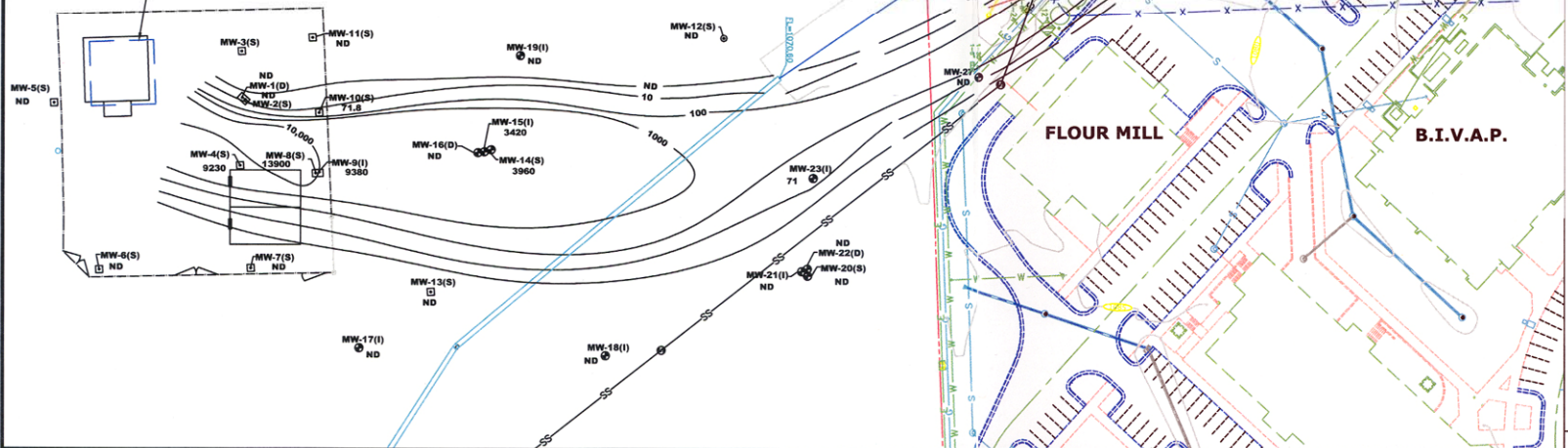
PROJECT: 05055:0544  
SCALE: 1:100  
DATE: 11.22.05

1,4 - DIOXANE (ug/L)  
NOVEMBER 2005

FIGURE  
15

DWN BY: JJS    CHKD BY: PRC    SHT: 15.0F.17

OCWLF BENEATH  
HAZARDOUS WASTE MANAGEMENT  
BUILDING



# 1,4 Dioxane

- ◆ 1,4 Dioxane
  - a. Radiation Scintillation fluid
    - the liquid into which a radiation sample is introduced prior to scintillation counting
  - b. Solvent Stabilizer
    - chemical companies use varying percentages of 1,4 Dioxane as a stabilizer for various solvents

# Bureau of Air & Radiation Involvement

- ◆ BWM asked BAR to review radiation data
- ◆ Facility has BAR license
- ◆ BAR pulls documents for review
- ◆ BAR provides guidance to BWM staff on adequacy of radiation sampling

# Current Status

- ◆ BAR required current radiological data via groundwater sampling
- ◆ BWM & BAR conduct joint meetings with facility representatives
- ◆ Groundwater sampling requirements will be a coordinated effort between BAR and BWM
- ◆ BWM personnel were Radiation Safety trained through the BAR